The Journal of Cell Biology

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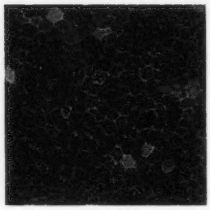
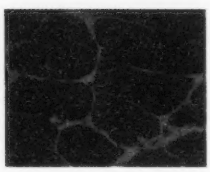


An evolutionarily conserved, multiprotein complex that participates in protein targeting and cell polarity includes Pals1/Stardust (red) and Pals1-associated tight junction protein (PATJ)/Discs Lost (green). The complex is found at tight junctions (blue). See page 161.



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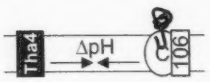
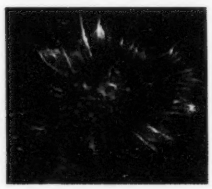


A translocation complex in plant thylakoids that uses a pH gradient is dependent on a signal peptide for complex assembly. See page 205.



Inactive glycogen synthase kinase-3 (GSK-3; green) colocalizes with actin fibers (red) at the leading edge of neuronal cells, but its activity is required for transduction of the growth cone collapse signal from Semaphorin 3A. See page 211.

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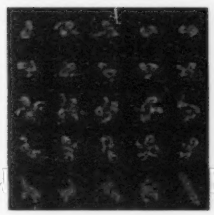

On the Cover

These three-dimensional anaglyph images of the conserved oligomeric Golgi (COG) complex (top four rows) are best viewed with the stereo glasses available on the inside front cover of this issue of the Journal. See page 405.

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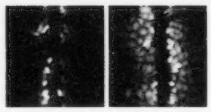
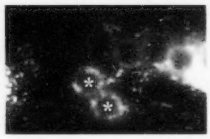


Heat shock (right) or other cytosolic stresses can reduce the dislocation of proteins from the ER seen during ER-associated degradation (ERAD). See page 381.



The behavior of a bead coated with an N-cadherin ligand (asterisk) suggests that cadherin anchoring to the actin cytoskeleton is an adhesion-triggered, Rac1-regulated process enabling the transduction of mechanical forces across the cell membrane. See page 469.

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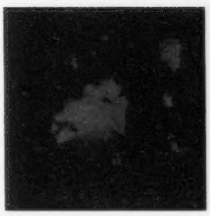

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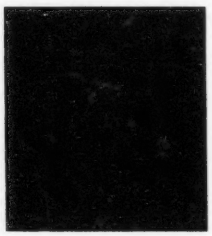
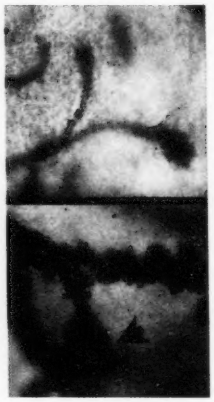


Signaling via syndecan-4 (red) modifies the response to fibroblast growth factor 2. See page 715.



In an inducible model for mammary tumorigenesis, normal mammary glands (top) show increased lateral budding of the ductal epithelium (bottom) after induction of a receptor for fibroblast growth factor. Sustained activation induces hyperplasia and invasive lesions. See page 703.

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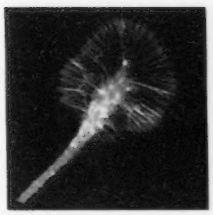

On the Cover

Actin bundles (green) provide a scaffold for the survival of protruding microtubules (red), and those microtubules determine the direction of migration for a growing axon. See page 839.

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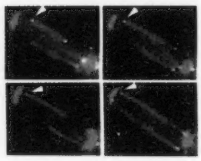
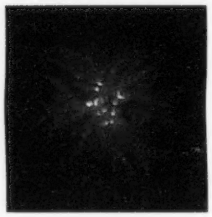


Tea1p (yellow) moves on the tip of growing microtubules (green) to reach the ends of fission yeast cells, where it localizes polarity factors and helps to organize microtubules. See page 783.



The microtubule-associated protein MAST/Orbit is required for functional kinetochore attachment. See page 749.

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- A vitamin makes minerals
- How fish oils work

A.W. Dove

Research Roundup

- How tumors escape oblivion 906
- Getting sick from Sic
- A time for cytokinesis
- Desensitizing interactions
- Slow and steady moves the cell

N. LeBrasseur

On the Cover

Diffusion of lipids in cellular membranes (top right) is slowed by the actin cytoskeleton and associated proteins, which cause the lipids to move in constricted areas before hopping to an adjacent area (see change of color). Brownian motion in an artificial lipid bilayer (bottom) is associated with less tightly clustered trajectories. See page 1071.

– Research Articles –

Reports

Np95 is regulated by E1A during mitotic reactivation of terminally differentiated cells and is essential for S phase entry 909

I.M. Bonapace, L. Latella, R. Papait, F. Nicassio, A. Sacco, M. Muto, M. Crescenzi, and P.P. Di Fiore

Protein kinase C βII and TGFβRII in ω-3 fatty acid–mediated inhibition of colon carcinogenesis 915

N.R. Murray, C. Weems, L. Chen, J. Leon, W. Yu, L.A. Davidson, L. Jamieson, R.S. Chapkin, E.A. Thompson, and A.P. Fields

Genetic analysis of the role of G protein–coupled receptor signaling in electrotaxis 921

M. Zhao, T. Jin, C.D. McCaig, J.V. Forrester, and P.N. Devreotes

Articles

c-erbB-3: a nuclear protein in mammary epithelial cells 929

M. Offterdinger, C. Schöfer, K. Weipoltshammer, and T.W. Grunt

Rlp7p is associated with 60S preribosomes, restricted to the granular component of the nucleolus, and required for pre-rRNA processing 941

O. Gadal, D. Strauss, E. Petfalski, P.-E. Gleizes, N. Gas, D. Tollervey, and E. Hurt

Characterization of Tbc2, a nucleus-encoded factor specifically required for translation of the chloroplast *psbC* mRNA in *Chlamydomonas reinhardtii* 953

A.H. Auchincloss, W. Zerges, K. Perron, J. Girard-Bascou, and J.-D. Rochaix

Articles with related stories in the *In This Issue* section have page numbers in red.

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The mechanism of inhibition of Ran-dependent nuclear transport by cellular ATP depletion 963

E.D. Schwoebel, T.H. Ho, and M.S. Moore

Nuclear and cytoplasmic shuttling of TRADD induces apoptosis via different mechanisms 975

M. Morgan, J. Thorburn, P.P. Pandolfi, and A. Thorburn

Ecdysone-induced expression of the caspase DRONC during hormone-dependent programmed cell death in *Drosophila* is regulated by Broad-Complex 985

D. Cakouros, T. Daish, D. Martin, E.H. Baehrecke, and S. Kumar

Huntingtin toxicity in yeast model depends on polyglutamine aggregation mediated by a prion-like protein Rnq1 997

A.B. Meriin, X. Zhang, X. He, G.P. Newnam, Y.O. Chernoff, and M.Y. Sherman

Ypt32 recruits the Sec4p guanine nucleotide exchange factor, Sec2p, to secretory vesicles; evidence for a Rab cascade in yeast 1005

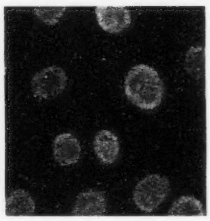
D. Ortiz, M. Medkova, C. Walch-Solimena, and P. Novick

Cod1p/Spf1p is a P-type ATPase involved in ER function and Ca^{2+} homeostasis 1017

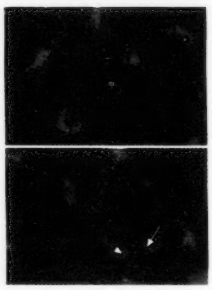
S.R. Cronin, R. Rao, and R.Y. Hampton

The endoplasmic reticulum cation P-type ATPase Cta4p is required for control of cell shape and microtubule dynamics 1029

A.L. Okorokova Façanha, H. Appelgren, M. Tabish, L. Okorokov, and K. Ekwall



The transmembrane receptor c-erbB-3 goes nuclear. See page 929.



Cytoplasmic (top) and nuclear (bottom) versions of the adapter protein TRADD induce apoptosis via two different mechanisms. See page 975.

The adenomatous polyposis coli protein unambiguously localizes to microtubule plus ends and is involved in establishing parallel arrays of microtubule bundles in highly polarized epithelial cells 1041

M.M. Mogensen, J.B. Tucker, J.B. Mackie, A.R. Prescott, and I.S. Näthke

Bone morphogenetic protein receptor signaling is necessary for normal murine postnatal bone formation 1049

M. Zhao, S.E. Harris, D. Horn, Z. Geng, R. Nishimura, G.R. Mundy, and D. Chen

Retinoic acid stimulates annexin-mediated growth plate chondrocyte mineralization 1061

W. Wang and T. Kirsch

Phospholipids undergo hop diffusion in compartmentalized cell membrane 1071

T. Fujiwara, K. Ritchie, H. Murakoshi, K. Jacobson, and A. Kusumi

Slow local movements of collagen fibers by fibroblasts drive the rapid global self-organization of collagen gels 1083

R.K. Sawhney and J. Howard

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– News –

In this Issue

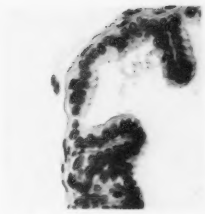
- Bundle up for cytokinesis 1100
- Prostate stem cells identified
- Lon plays the chaperone
- L1 sticks around
- Mapping MAP binding

N. Lebrasseur

Research Roundup

- A Molotov cocktail: dopamine and α-synuclein 1102
- Gluing cells into the niche
- And the winner is ... the phosphatase!
- The nuclear pore as a chromatin boundary
- Cajal body finds its function

R. Tuma



On the Cover

Slowly dividing prostatic epithelial stem cells, identified by their ability to retain label, originate in the proximal region of prostatic ducts and migrate distally as transit-amplifying cells (shown). See page 1257.

– Research Articles –

Reports

Functional binding interaction identified between the axonal CAM L1 and members of the ERM family 1105

T.C. Dickson, C.D. Mintz, D.L. Benson, and S.R.J. Salton

Articles

Cell cycle–dependent localization of macroH2A in chromatin of the inactive X chromosome 1113

B.P. Chadwick and H.F. Willard

Human securin proteolysis is controlled by the spindle checkpoint and reveals when the APC/C switches from activation by Cdc20 to Cdh1 1125

A. Hagting, N. den Elzen, H.C. Vodermaier, I.C. Waizenegger, J.-M. Peters, and J. Pines

The roles of Fzy/Cdc20 and Fzr/Cdh1 in regulating the destruction of cyclin B in space and time 1139

J.W. Raff, K. Jeffers, and J.-y. Huang

Transmission of cell stress from endoplasmic reticulum to mitochondria: enhanced expression of Lon protease 1151

O. Hori, F. Ichinoda, T. Tamatani, A. Yamaguchi, N. Sato, K. Ozawa, Y. Kitao, M. Miyazaki, H.P. Harding, D. Ron, M. Tohyama, D.M Stern, and S. Ogawa

Sequential SNARE disassembly and GATE-16–GOS-28 complex assembly mediated by distinct NSF activities drives Golgi membrane fusion 1161

J.M.M. Müller, J. Shorter, R. Newman, K. Deinhardt, Y. Sagiv, Z. Elazar, G. Warren, and D.T. Shima

Articles with related stories in the *In This Issue* section have page numbers in red.

Articles (cont.)

PRC1 is a microtubule binding and bundling protein essential to maintain the mitotic spindle midzone 1175

C. Mollinari, J.-P. Kleman, W. Jiang, G. Schoehn, T. Hunter, and R.L. Margolis

MAP2 and tau bind longitudinally along the outer ridges of microtubule protofilaments 1187

J. Al-Bassam, R.S. Ozer, D. Safer, S. Halpain, and R.A. Milligan

Modulation of receptor cycling by neuron-enriched endosomal protein of 21 kD 1197

P. Steiner, J.-C. F. Sarria, L. Glauser, S. Magnin, S. Catsicas, and H. Hirling

Differential PI 3-kinase dependence of early and late phases of recycling of the internalized AT_1 angiotensin receptor 1211

L. Hunyady, A.J. Baukal, Z. Gáborik, J.A. Olivares-Reyes, M. Bor, M. Szaszák, R. Lodge, K.J. Catt, and T. Balla

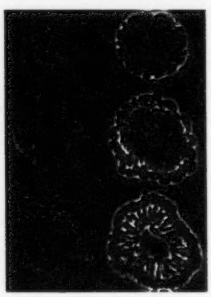
L1 endocytosis is controlled by a phosphorylation-dephosphorylation cycle stimulated by outside-in signaling by L1 1223

A.W. Schaefer, Y. Kamei, H. Kamiguchi, E.V. Wong, I. Rapoport, T. Kirchhausen, C.M. Beach, G. Landreth, S.K. Lemmon, and V. Lemmon

Dynamic interaction of VCAM-1 and ICAM-1 with moesin and ezrin in a novel endothelial docking structure for adherent leukocytes 1233

O. Barreiro, M. Yáñez-Mó, J.M. Serrador, M.C. Montoya, M. Vicente-Manzanares, R. Tejedor, H. Furthmayr, and F. Sánchez-Madrid

The histone H2A variant macroH2A accumulates in discrete bands on the inactive X chromosome. MacroH2A accumulation is regulated by the cell cycle. See page 1113.



Embryoid bodies require laminin (green) for basement membrane assembly and differentiation (top to bottom). See page 1279.

Retention of a cell adhesion complex at the paranodal junction requires the cytoplasmic region of Caspr 1247

L. Gollan, H. Sabanay, S. Poliak, E.O. Berglund, B. Ranscht, and E. Peles

Proximal location of mouse prostate epithelial stem cells: a model of prostatic homeostasis 1257

A. Tsujimura, Y. Koikawa, S. Salm, T. Takao, S. Coetzee, D. Moscatelli, E. Shapiro, H. Lepor, T.-T. Sun, and E.L. Wilson

Dominant regulation of interendothelial cell gap formation by calcium-inhibited type 6 adenylyl cyclase 1267

D.L. Cioffi, T.M. Moore, J. Schaack, J.R. Creighton, D.M.F. Cooper, and T. Stevens

Matrix assembly, regulation, and survival functions of laminin and its receptors in embryonic stem cell differentiation 1279

S. Li, D. Harrison, S. Carbonetto, R. Fässler, N. Smyth, D. Edgar, and P.D. Yurchenco